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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,800	02/16/2001	Erich Strasser	56/349	5551

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CHICAGO, IL 60610

EXAMINER

SONG, HOON K

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,800

Applicant(s)

STRASSER, ERICH

Examiner

Hoon Song

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-12, 14, 16-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Curtis (US 4618940).

Regarding claims 1, 18, 22 Curtis teaches a method for operation of a position measuring device, which comprises

a scanning unit that defines a scanning plane and a measuring graduation that defines a measuring graduation plane, said scanning unit and said measuring graduation are movable relative to one another during a measurement operation, and position-dependent output signals are generated during scanning performed by said scanning unit, said method comprising (figure 1a):

regulating said position-dependent output signals to constant signal amplitudes by action on a controlling variable (column 4 line 16+);

ascertaining a value of said controlling variable (error signal) required for said regulating (column 4 line 40+); and

displaying (histogram) said value of said controlling variable (column 4 35+).

Regarding claims 2 and 16-17, Curtis teaches that the method, further comprising:

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converting said value of the controlling variable into a digital signal (column 5 line 20+) suitable for serial transmission (column 2 line 49+); and

transmitting said digital signal to an electronic evaluation unit (CPU, histogram) downstream of said position measuring device.

Regarding claims 4, 19-20, Curtis teaches that said regulating said position dependent output signals to a constant signal amplitude comprises varying a current supply of a transmission coil (light source) as a function of said controlling variable (column 3 line 1+ and column 4 line 65+).

Regarding claims 5, 21, Curtis teaches that said regulating said position dependent output signals to a constant signal amplitude comprises varying a gain of an amplifier element as a function of said controlling variable (column 5 line 20+).

Regarding claims 6, 23, Curtis teaches that the regulating said position dependent output signals to a constant signal amplitude comprises varying a luminosity of a light source as a function of said controlling variable (column 3 line 1+ and column 4 line 65+).

Regarding claim 7, Curtis teaches that the method of claim 2, further comprising transmitting said digital signal in a serial protocol at a predetermined bit width (Δt) to said electronic evaluation unit (40, CPU).

Regarding claim 10, Curtis teaches that said displaying comprises having said value of said controlling variable displayed in graphic form (column 3 line 25+).

Regarding claim 11, Curtis teaches that said setting is performed by a calibration element (CPU).

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Regarding claim 12, Curtis teaches that said position-dependent output signals comprise a first periodic signal $A = A_o * \sin(xt)$ and a second periodic signal $B = B_o * \cos(xt)$, said method further comprising (SIG A and SIG B, figure 3 and 4):

forming a variable $R^2 = A^2 + B^2$ which is representative of said value of said controlling variable used during said regulating (column 4 line 24+).

Regarding claim 14, Curtis teaches a position measuring device for generating position dependent output signals, comprising:

A scanning element by which a scanning plane is defined (figure 1);

A measuring graduation movable relative to said scanning element and defining a measuring graduation plane (figure 1);

A regulation device (30) for regulating output signals to constant signal amplitudes, in that said regulating device acts upon a predetermined controlling variable (threshold), to which end a requisite value of said controlling variable (e) for the purpose of regulating is ascertained continuously (histogram) by said regulating device; and

A conversion device for converting said value of said controlling variable into a digital signal suitable for serial transmission (column 5 line 20+ and column 2 line 49+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis (US 5302944).

Regarding claim 9, Curtis fails to teach that said displaying comprises having said value of said controlling variable displayed in a form of an alphanumeric variable.

However, one having ordinary skill in the art would be motivated to display the controlling variable in alphanumeric variable instead of graphic form because it is easier to read.

Claims 3, 8, 15, 24-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis in view of Schwefel (US 4225931)

Regarding claims 3, 8, 15, 24, 26 and 31-32, Curtis teaches a method for operation of a position measuring device, which comprises a scanning unit that defines a scanning plane and a measuring graduation that defines a measuring graduation plane, said scanning plane and said measuring graduation plane being separated by a scanning spacing, said scanning unit and said measuring graduation are movable relative to one another during a measurement operation, and position-dependent output signals are generated during scanning performed by said scanning unit, said method comprising:

regulating said position-dependent output signals to constant signal amplitudes by action on a controlling variable;

ascertaining a value of said controlling variable required for said regulating;

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However, Curtis fails to teach converting said controlling variable into a variable that directly corresponds to an actual scanning spacing and displaying said value of said variable that directly corresponds to said actual scanning spacing.

Schwefel teaches an interpolation apparatus for digital electronic position measuring instrument displaying relative position of a scanning unit with respect to scale.

In view Schwefel, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to display the actual scanning spacing because it is known that the controlling variable is directly proportional to an actual scanning spacing. Accordingly, one would be motivated to display the spacing because it provides user friendly system which easier to recognize malfunction of the system.

Regarding claim 25, Curtis teaches that further comprising:

converting said value of said controlling variable into a digital signal suitable for serial transmission (column 5 line 20+ and column 2 line 49+); and

transmitting said digital signal to an electronic evaluation unit (CPU, histogram) downstream of said position measuring device.

Regarding claims 27, 30, Curtis teaches that said regulating said position-dependent output signals to a constant signal amplitude comprises varying a current supply of a transmission coil (light source) as a function of said controlling variable (column 3 line 1+ and column 4 line 65+).

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Regarding claim 28, Curtis teaches that said regulating said position dependent output signals to a constant signal amplitude comprises varying a gain of an amplifier element as a function of said controlling variable (column 5 line 20+).

Regarding claim 29, Curtis teaches that said regulating said position dependent output signals to a constant signal amplitude comprises varying a luminosity of a light source as a function of said controlling variable (column 3 line 1+ and column 4 line 65+).

Regarding claim 33, Curtis teaches that said setting is performed by a calibration element (CPU).

Regarding claim 34, Curtis teaches that said position-dependent output signals comprise a first periodic signal $A = A_o * \sin(xt)$ and a second periodic signal $B = B_o * \cos(xt)$, said method further comprising (SIG A and SIG B, figure 3 and 4):

forming a variable $R^2 = A^2 + B^2$ which is representative of said value of said controlling variable used during said regulating (column 4 line 24+).

Response to Arguments

Applicant's arguments with respect to claims 1-12 and 13-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 703-308-4858. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon Song
July 27, 2003

A handwritten signature in black ink, appearing to read "David Bruce", written in a cursive style.

DAVID V. BRUCE
PRIMARY EXAMINER